

Warm Up

1) You have a basket containing ten apples. You have ten friends, who each desire an apple. You give each of your friends one apple.

Now all your friends have one apple each, yet there is an apple remaining in the basket.

How?

Can you get desmos on your phone?

Try going to www.desmos.com

let's try graphing some parabolas....

- $x^2+8x+12 \rightarrow -6, -2$

- $x^2+10x-20$

- x^2-3x-4

$$(x+6)(x+2)$$

Where do they touch the x-axis????

Hmmmm.... do you think there is a link here????

Name _____

Factoring Quiz

Expectation	Level Achieved
A1 - expand and simplify quadratic expressions	

1. Factor by finding the
- greatest common factor

$$\text{a. } 8x^2 + 40x = 8x(x+5)$$

$$\text{b. } 20x^3 - 5x^2 + 100x = 5x(4x^2 - x + 20)$$

2. Factor using the sum and product rule (
- MAN or MAN UP
-)

$$\text{a. } x^2 + 10x + 16$$

M: 16
A: 10
N: $\frac{16}{1x}, \frac{10}{1x}$

$$(x+8)(x+2)$$

$$\text{b. } 8x^2 - 2x - 3$$

M: -24
A: -2
N: $-\frac{6}{8x}, \frac{4}{8x}$

$$(4x-3)(2x+1)$$

$\frac{-3}{4x}$ $\frac{2}{4x}$
 $\frac{1}{2x}$

3. Factor the
- difference of squares

$$\text{a. } x^2 - 9 = (x+3)(x-3)$$

$$\text{b. } 4x^2 - 36y^2 = 4(x^2 - 9y^2) = 4(x-3y)(x+3y)$$

4. Factor by
- grouping

$$\text{a. } (x+3)(x-1) + 4(x-1)$$

✓ $(x-1)(x+3+4) = (x-1)(x+7)$

$$\text{b. } 8x^3 + 4x^2 + 6x + 3$$

$4x^2(2x+1) + 3(2x+1)$
 $(2x+1)(4x^2+3)$

should match

5. Factor fully

$$\text{a. } x^2 - 8x - 20$$

M: -20
A: -8
N: $-\frac{10}{1x}, \frac{2}{1x}$

$$(x+2)(x-10)$$

$$\text{b. } 3x^2 + 21x + 20 = 3(x^2 + 7x + \frac{20}{3}) = 3(x+2)(x+5)$$